Nepa Mills Expansion—A Right Step at the Right Time

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India is a big country inhabited by 480 million people and needs about 360-380 tons of Newsprint a day and this consumption is bound to go up in the years ahead with the increasing population (rate being 12.5 million per year), increasing literacy and ever increasing tempo of industrialisation. The only and the still only Newsprint Mill of the country—The National Newsprint & Paper Mills Ltd., Nepanagar (M.P.) has made much headway and is now on its firm footing and marching on, is able to meet 22-24% of our country's total requirements and the rest being met with imports. There have been a great many plans all these years for the manufacture of newsprint but most of those seem to have been cold storaged. Some of these which may come up in the coming years are the Newsprint Mill at Nangal (Punjab) (M/s. Karam Chand Thapar and Bros.)—Newsprint Mill (based on bagasse) at Sangli (Maharashtra) (M/s. Shetkari Sakhar Karkhana Ltd.), and Newsprint Mill (Based on Bagasse) at Moradabad (U.P.) (M/s. Birla Bros.). Imports of newsprint cost 8 crores annually—an exorbitant amount and a continuous drainage of Foreign Exchange, which we can ill-afford for all times to come and especially at this juncture when our country is just recovering from the shocks of two armed conflicts.

In these dark clouds of Newsprint crisis which is a permanent headache forcing Newspapers for a cut in their consumption and would still widen the gap between the actual readership and the allocation, Nepamills expansions from the present 30,000 to 75,000 tonnes a year seems to be the only silver lining. This expansion is due to the very concerted and much pains—untiring taking efforts of Shri P.S. Kothari, Managing Director, who has taken on his shoulders this sacred responsibility. The Government of India has to be congratulated very heartily for having Okayed Shri Kothari's proposal, which is more than valuable and timely and has given the green signal for going ahead. I feel the day is not far off when the large scale and ambitious expansion of Nepa would be completed and it would be no wonder seeing Nepa producing 300 tpd instead of the stipulated 250 tpd. This all would be a boon for our country, going a long way in easing the economic position, and solving the much vexing riddle of newsprint crisis.

The expansion of Nepamills would consist of installing:

—50 tpd chemical pulping plant (based on bamboo),

—90 tpd cold soda pulping plant (based on Boswellia Serrata-salai),

—90-100 tons soda recovery unit,

—10 M.G.D. New Water Works,

—Newsprint making machine—125 tons/day—speed 1500 fpm—wire width, 226" pressurized headbox and a vaccum pick up.

The orders for the huge newsprint making machine, finishing house and stock preparation equipments had been placed long back with the world famous organisation, Messrs. Watsila Koncernen, A/B., Helsinki, Finland. The special significance of this deal, costing about Rs. 1.5 crores is the deferred payment terms over a 13-year period.

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The first shipment of equipment is expected by year end or next year beginning. Cleaning of site and other initial work for expansion is already in hand and is gaining momentum day by day.

Messrs. Wartsila Koncernen have already to their account the credit of having supplied very giant Paper, Newsprint Machines all over the world. Two Wartsila Paper Machines (146 wire width) at Khulna Newsprint Mill, Khulna (East Pakistan) went into production in August, 1959 and are operating at speeds 1600 fpm and 1200 fpm manufacturing in total 100—110 tpd of Newsprint and mechanical printings and the speed being the fastest anywhere, where newsprint is being manufactured from a high proportion of tropical wood.

After expansion NEPA Newsprint would consist of:

80-90 tons of chemical pulp (bamboo).
—90 tons of stone groundwood pulp (Boswellia Serrata),
—90 tons of cold soda pulp (Boswellia Serrata).

At Nepa optimum "power availability", has been a great handicapping, crippling factor since the very beginning and has affected not only our newsprint quality but also the production and at the same time the cost structure and the ultimate profit picture. This is all due to some miscalculations having been made in the very beginning in assessing the power needs. The power availability though quite regular for the last 4-5 years is still not the optimum and some power rationing is still there at times.

This power shortage has hit worst the mechanical pulping section where we can avail of 50% of our huge mechanical pulp grinders only. Availability of 200-300 amperes and at times 150 amperes load at the grinders and the worry of keeping up the groundwood pulp production of 50-55 tpd for a newsprint production of 85-90 tpd makes us burr the pulp stones very often, resulting in poor quality of mechanical pulp necessitating blending of 40-45% of chemical pulp (bamboo) in the newsprint furnish for smooth operation at the paper machine at a speed of 800-900 fpm. At Khulna Newsprint Mill Gewa (Hardwood) though short fibred has been very nicely tamed for mechanical pulp production by light burring of pulpstones and higher power consumption and the HPD/ton is 60 as against the standard 70-75 and Nepa's 30-35. This shortage of power for our mechanical pulping requirements has even handicapped our running the newspring making machine at top speed—1200-1300 fpm—the designed speed which would have given us dividends long back. The recent trend in machines (Newsprint) speed is shooting the skies 3000-3200 fpm in view of rising costs of men, materials and machines. Already speeds of over 4000 fpm have been achieved at Georgia Pacific Corp. (USA) making tissue paper. Speeds of 5000 and above are expected to be realities by 1970.

Hardwoods (Deciduous species) have been real headaches all along for the chemists/technologists and engineers giving poor strength quality mechanical pulp and Boswellia Serrata is no exception and is short fibred. Recent years have witnessed an increasing use of hardwoods all around the world—USA, Germany, Scandanavia, France, Australia, Italy, Africa, Pakistan, India, etc. Various modifications of groundwood pulp from hardwoods have appeared in the scene and have moved to be of utmost relief value. These are:

Chemi Groundwood Process...(Treating of logs with NSSC liquor before grinding) Great Northern Patent—Stone and Webster Engineering Corp., New York (U.S.A.).

Being used at:

1. Great Northern Paper Co., East Millionocket, Maine, U.S.A.
2. Socoete F. Beghin, S.A. Corbehem Pas-de-Calcais, France,
3. Khulna Newsprint Mill, Khulna, East Pakistan.

ALB Semi-cell pr cess...(Treating of logs with NSSC liquor before grinding) (Austrian Patent).

Being used at:

1. Pf Leider and Co., Bavania,
2. Papeteries Navarre, Roanne, France,

Chemi Mechanical Process... (Treating of logs with caustic soda before grinding).

Being used at:

Industries Klabin Dos Parana de Cellulose S/A, Brazil (South America).

Grinding in the presence of Chemicals (i.e. Sodium sulfite and alkalies).

Being done at:

1. MacMillan Bloodell, Powell River Ltd., Powell River B.C., Canada.
2. Australian Newsprint, Paper Mills Ltd., Tasmania, Boyer.

Cold Soda pulps...(Treating of chips with alkali before fibrising), Australian Newsprint Mills Ltd., Tasmania, Boyer-Australia.

Being used at: 20 or more mills all over the world (United States, Europe, South America, Australia, Japan).

Neutral Sulfite impregnated Groundwood pulps: (Treatment of chips with lot sodium sulfite before fibrizing).

Refiner Groundwood (Super Groundwood)... (Groundwood from chips by refining).

All these chemi-mechanical processes promise a high yield 80-95% on the B.D. weight of wood, as compared to 90-95% in the groundwood, give satisfactory strength pulps thereby replacing quite a good percentage of costly sulfite pulps and a part of softwood groundwood pulps. These hardwood semi-chemical processes have been truly pronounced as "a gift of the Gods". Hardwoods on the whole effect great economies—being cheaper than softwoods, are easily and abundantly available and on conversion to high yield or Ultra High Pulps, the cost advantage becomes still greater as compared to pulps made by any of the chemical processes. Besides hardwoods are short fibred, more flexible than softwood, give improved foundation, surface, smoothness, opacity absorbency, etc. which are all desirables from the printers' point of view and also require practically little or no beating.

In Brazil at Industries Klabin dos Parana de Cellulose S.A. Eucalypt is being treated with 4% caustic soda at a temperature of 80% C. for a period of 24 hours in an impregnation pond before grinding for the production of chemi-mechanical pulp. The newsprint furnish consists of 35% pine groundwood, 35% eucalypt chemi-mechanical pulp, 20% sulfite pulp and 10 broke and is running at speeds (paper machine) 1800-2000 fpm.

Japan has made tremendous/important strides in utilizing the hard woods to the best possible extent in the paper/newsprint manufacture having gone in for chemi-mechanical, chemi-groundwood, cold soda, neutral sulfite (NS) impregnated groundwood pulps. The percentage of these being 28-40 in the furnish running at big machines at speeds 2000 fpm and above comparable with the best in North America and Europe. There has been meteoric growth of Paper/Newsprint Industry even in pite of dominating hardwoods, critical and woeful raw material position and Japan today is a world leader in percentage growth (10) and ranks No. 3 in the world in the Paper Industry and has been aptly described as the rising sun of the paper industry. (Pulp and Paper International. Review No. 25, Aug., 1965).

In Pakistan at Khulna Newsprint Mill—Gewa (Excoecaria Agallocha)—Hardwood has been very successfully utilised for the manufacture of newsprint and mechanical printings the furnish being Gewa stone groundwood—Gewa Chemi-groundwood pulp—Imported chemical pulp in the percentages 60 : 30 : 10 from 35,000 to 50,000 tons/year have already been taken up:

	Burst factor	Tear factor	Breaking length	Freeness (C.S.F.)	HPD/Ton
Chemi Groundwood (Gewa)	11.0	36	2600	150	110
Stone Groundwood (Gewa)	8.5	25	1700	90	60

Cold Soda pulpings first commercial trial was done at the Green Bay Paper Pulp Co., Green Bay, Wisconsin in 1953 (Pulp was used on corrugated boards and full scale commercial production of bleached cold soda pulp (40 tpd) at the Gould Paper Co., Lyon Falls, New York in 1956 (for use in printing, writing papers). Oji Paper Co., Tomakomai, Japan is having the biggest cold Soda Pulping Plant (250 tpd) manufacturing about 1330 tons/day [1210 tons (1210 tons Newsprint+120 tons Magazine Rotagrevure Paper)] and is Japan's Newsprint Grant and one of the world's largest Newsprint Mills.

In Australia, Australian Newsprint Mills, Tasmania, Boyer, has also best utilised eucalypt by going in for cold soda pulping as early as July, 1957. The furnish for newsprint consists of 60% groundwood, 23% cold soda pulp and 17% semi-bleached kraft. The use of 23% cold soda pulp in place of groundwood has resulted in increased machine speeds and newsprint production increase of 6.5%. The upper limit for cold soda pulp in the newsprint furnish lies between 30-40% for satisfactory machine run and no trouble in machine operation has been encountered with furnishes containing 25%—paper machine operating speeds are in excess of 1400 fpm with an open head box and open draw at couch.

The cold soda pulps have the advantage of low power consumption—higher freeness and have the properties ranging from those similar to softwood groundwood to those approaching hard wood chemical pulps:

	Burst factor	Tear factor	Freeness (C.S.F.)	Hard/ T
—Cold soda pulp— caustic soda usage —6.35% on wood yield—90% (Eucalypt)	21.9	45.6	133	50-55
—Groundwood pulp (Eucalypt)	6.9	18.8	65	85.2

Another added advantage and bonus that the "cold soda pulping" would give is the utilisation of the Bull screen slivers presently going waste (dispensing with the problem of their disposal), centrifugal screen rejects (which are being sewered), thin dia. meter billets chips produced in the forest (during the preparation of 4 feet length billets from the tree), bamboo dust (produced during chopping/screening) which is going waste and disposal again is a problem and all this would be resulting in lower costs and best conservation of our forests and fibrous raw materials.

The installation of a second centrifugal screen (cowan) in the mechanical pulping department which is being worked in series along with the existing centrifugal screening has been of a very big help in view of our poor quality mechanical pulp not only in decreasing the pulps shive content but also improving the paper machine run—and this has been another count and a step further for better newsprint production with upgraded quality.

During the initial start up of the paper machine in 1955 the trimmed width of newsprint was 201-202. Recent shutdown for 4 days for modifications/certain changes resulted in increase in the width of newsprint to 214" at the paper machine which is 4" more than the machine designers specification and 14-16" more than what we had all these years is another laudable and remarkable achievement and would go to not only give us a production increase of 5-6% but also affect the overall performance and the company's revenue.

The absence of requisite/adequate newsprint furnish cleaning equipment at the paper machine has to a big extent affected our production all these years and this is again a point where some faultening had been done in the very beginning not knowing the troubles that we may be facing. Simple screening of 90-95 tpd of newsprint furnish through the 3 Bird screens at a consistency of 0.5-0.6% in the existing conditions of pulping (chemical, groundwood) is more than inadequate. The installation of centri-cleaners in the near future would not only go to improve the newsprint quality and production but would also give us a host of other advantages.

Creditable, notable performance and running at peak capacities of the chemical pulping and soda

recovery units which was possible due to a great many modifications, has played a very dominating and decisive role in meeting the demands of the Increased/ Target production.

Manufacturing bleaching chemicals at the paper mill is an attractive proposition entailing a great many advantages or merits. Going into production of our chlorine caustic soda plant in July, 1965 and its successful start up and trouble free operation is another feather in Nepa Mill's cap. Here too the start up was not only delayed for want of power but the plant still gets 40-50% of its power requirements. This manufacturing of bleaching chemicals has brought down actual cost of chemicals to about 65-70% and still the figure would come down to 60-55 when the chlorine caustic soda plant operates at peak efficiency/full production. The availability of those bleaching chemicals at our doors would enable us to lower the cost of pulping and better the product shade and give us uninterrupted bleaching, pulping operation and a pronounced effect on the cost of newsprint/ton and ultimate profits.

Streamlining of various operations and other processes improvements, overcoming of trials and tribulations which have been possible due to the advice, experience and long standing in paper industry of Shri P.S. Kothari, has not resulted only in reaching or crossing the production targets but at the same time in upgrading the newsprint quality. The year 1966 seems to me a golden year full of all hopes/promises and would open up a new era in the history of Nepamills.

The installation of cold soda pulping plant should precede the construction of other units and receive the top most priority. Operation of this plant at 50-60% capacity (while the other units are under erection) and supplying this cold soda pulp along with the normal newsprint furnish would not only allow us to even out/surmount the process difficulties and other hurdles that may crop up but would let us standardise the cold soda pulp operation and its product, which would be the first installation of its kind in India but at the same time it would enable us to examine the paper making characteristics of the fibres and the effeet it would have on newsprint. This would enable us to have a production of 150 tpd before we switch over to 250 tpd. Cold soda pulping seems to be a very attractive and economic proposition, promising higher yields, higher strength, higher freeness and lower HPD/T as compared to chemi-ground wood pulps. Hardwoods are most receptive to alkalies and cold soda pulping and Boswellia Serrata would not misbehave.

The question of power and fibrous raw materials (approximating to 200-220 tpd of bamboo and 400-420 tpd of Boswellia Serrata Salai) for the expanded mill with a production of 250-260 tpd of newsprint merits serious and extra special consideration with no second thought. Though the Experts Committee Report on the availability of "Raw Materials" promises salai for 20-22 years for the expanded Newsprint Mill's full requirements, but we should not be caught napping after that period in view of the failure of salai plantation by Forest Department. Very large scale plantation of Eucalypt and other fast growing wood species needs the immediate attention of foresters/Experts, Depleting and dewinding forests and plantations failures are big hazards and have to be guarded and taken care of in time and right time. In foreign countries Forests/ Plantations are given the most potential importance, considered as the National Wealth and for one tree cut 3 trees are planted and plantations of today we considered to be the Trees of Tomorrow.

Expert advice and Foreign Collaboration on the matter of Plantation, keeping in view the demands of the Huge Expansion, would be quite opportune and a far sighted motto.

Another very big advantage that the expansion of Nepamills would have is the availability of trained technical personnel and the other people who have all with them the desired know-how of newsprint manufacture and who have faced the teething/ baffling troubles since the very inception to the present state and who are waiting very anxiously to meet

the cirsis on Newsprint front like the disciplined soldiers facing the country's frontiers.

The writer imagines Nepamills of 1968/1969 when—

1. —The entire mill would get a face lift—size of the mill (250 tpd) would be economic.
2. —Production of newsprint would be touching new heights 250-300 tpd.
3. —Paper machines would be operating at higher speeds 1200-1500 fpm with trouble free run.
4. —Supply of raw materials would be all indigenous.
5. —Newsprint quality would be shooting to the skies and matching very well with Norwegian, Swedish and Finnish supplies.
6. —Newsprint cost/ton would come down and profits would be reaching new heights.
7. —We would be lowering a little the selling price.

All this and the expansion would be welcome at this price.

In the end let me not delay in congratulating very heartily Shri P.S. Kothari for his ideas and initiative for his ingenuity and inventiveness and wishing him a grand/wonderful success in this Expansion Venture which would go to save Rs. 5-6 crores annually with this further investment of Rs. 9.5 crores.

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